

WHAT IS CLAIMED IS:

1. A method of cementing within a wellbore, comprising:

5 introducing a cement slurry comprising a hydraulic cement base and a natural mineral fiber into said wellbore; and

allowing said cement slurry to cure within said wellbore to form a hardened cement composition within said wellbore;

10

wherein a temperature of at least a first portion of said well bore is greater than about 180°F;

15

wherein said natural mineral fiber is present in said cement slurry in an amount greater than about 10% by weight of cement, and is also present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 at said temperature of said at least a first portion of said well bore that is greater than about 180°F; and

20

wherein said natural mineral fiber comprises at least one calcium silicate natural mineral fiber.

25

2. The method of claim 1, wherein said calcium silicate natural mineral fiber comprises at least one of wollastonite, pyrophyllite, algamatolite, or a mixture thereof.

30

3. The method of claim 1, wherein a temperature of said at least a first portion of said well bore is greater than about 200°F; and wherein said natural mineral fiber is

present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 at said temperature of said at least a first portion of said wellbore that is greater than about 200°F.

5

4. The method of claim 1, wherein a temperature of said at least a first portion of said well bore is greater than about 240°F; and wherein said natural mineral fiber is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 at said temperature of said at least a first portion of said wellbore that is greater than about 240°F.

10

5. The method of claim 1, wherein a temperature of said at least a first portion of said well bore is greater than about 380°F; and wherein said natural mineral fiber is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.5 at said temperature of said at least a first portion of said wellbore that is greater than about 380°F.

15

20

6. The method of claim 1, wherein said natural mineral fiber is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 50% higher than the ratio of flexural strength to compressive strength of a cured conventional cement composition having substantially the same composition, but without said natural mineral fiber component, at said temperature of said at least a first portion of said wellbore that is greater than about 180°F.

25

30

7. The method of claim 1, wherein a temperature of said at least a first portion of said well bore is less than about 180°F when said cement slurry is introduced into said wellbore and allowed to cure; and further comprising allowing the temperature of said at least a first portion of said wellbore to rise above about 180°F; wherein said natural mineral fiber is present in said cement slurry in an amount selected to be effective to result in an increase in the compressive strength of at least a portion of said cured cement composition when said temperature of said at least a first portion of said wellbore is allowed to rise above about 180°F.

8. The method of claim 1, wherein said natural mineral fiber is present in said cement slurry in an amount of from greater than about 10% by weight of cement to about 150% by weight of cement.

9. The method of claim 1, wherein said well bore is a geothermal well or a steam injection well.

10. The method of claim 1, wherein said hydraulic cement base comprises Portland Cement.

11. A method of cementing within a wellbore, comprising:

introducing a cement slurry comprising a hydraulic cement base and wollastonite into said wellbore; and

allowing said cement slurry to cure within said wellbore to form a hardened cement composition within said wellbore;

wherein a temperature of at least a first portion of said well bore is greater than about 180°F;

5 wherein said wollastonite is present in said cement slurry in an amount greater than about 10% by weight of cement, and is also present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 at said
10 temperature of said at least a first portion of said well bore that is greater than about 180°F.

12. The method of claim 11, wherein said hydraulic cement base comprises Portland
15 Cement.

13. The method of claim 12, wherein a temperature of said at least a portion of said well bore is greater than about 200°F; and wherein said wollastonite is present in said
20 cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 at said temperature of said at least a first portion of said wellbore that is greater than about 200°F.

25 14. The method of claim 12, wherein a temperature of said at least a portion of said well bore is greater than about 240°F; and wherein said wollastonite is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that
30 is greater than or equal to about 0.35 at said temperature of said at least a first portion of said wellbore that is greater than about 240°F.

15. The method of claim 12, wherein a temperature of said at least a first portion of said well bore is greater than about 380°F; and wherein said wollastonite is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.5 at said temperature of said at least a first portion of said wellbore that is greater than about 380°F.

16. The method of claim 12, wherein said wollastonite is present in said cement slurry in an amount selected to be effective to result in at least a portion of said cured cement composition having a ratio of flexural strength to compressive strength that is greater than or equal to about 50% higher than the ratio of flexural strength to compressive strength of a cured conventional cement composition having substantially the same composition, but without said wollastonite component, at said temperature of said at least a first portion of said wellbore that is greater than about 180°F.

17. The method of claim 12, wherein a temperature of said at least a first portion of said well bore is less than about 180°F when said cement slurry is introduced into said wellbore and allowed to cure; and further comprising allowing the temperature of said at least a first portion of said wellbore to rise above about 180°F; wherein said wollastonite is present in said cement slurry in an amount selected to be effective to result in an increase in the compressive strength of at least a portion of said cured cement composition when said temperature of said at least a first portion of said wellbore is allowed to rise above about 180°F.

18. The method of claim 12, wherein said wollastonite is present in said cement slurry in an amount of from greater than about 10% by weight of cement to about 150% by weight of cement.

5

19. The method of claim 12, wherein said well bore is a geothermal well or a steam injection well.

10 20. A fiber-containing cement composition, comprising a hydraulic cement base and a natural mineral fiber; wherein said natural mineral fiber is present in an amount greater than about 10% by weight of cement; wherein said natural mineral fiber is also present in said fiber-containing cement composition in an amount selected to be effective so as to result in a cement slurry and a cured cement composition formed from said cement slurry
15 having a ratio of flexural strength to compressive strength that is greater than or equal to about 0.35 when said cement slurry is exposed to a temperature of greater than about 180°F; and wherein said natural mineral fiber comprises at least one calcium silicate natural mineral fiber.

20

21. The fiber-containing cement composition of claim 20, wherein said calcium silicate natural mineral fiber comprises at least one of wollastonite, pyrophyllite, almagatolite, or a mixture thereof.

25

22. The fiber-containing cement composition of claim 20, wherein said calcium silicate natural mineral fiber comprises wollastonite.

30

23. The fiber-containing cement composition of claim 22, wherein said hydraulic cement base comprises Portland Cement.